REMARKS

Claims 1-15 are cancelled. Claims 16 through 24 have been added. No new matter has been added. Applicant respectfully submits that new claims 16 through 24 are allowable over the art of record. For example, consider claim 16, which is directed to a first-surface optical disk including ECC blocks according to one embodiment of the invention. As discussed by the Applicant on, e.g., page 5, lines 7 through 14, conventional optical disks may be denoted as "second-surface" disks because the information layer is covered by a relatively thick transparent layer, typically at least 50 wavelengths in thickness or more with respect to the wavelength of the laser beam that will be used to read/write the information layer. This thick transparent layer then acts to defocus dust particles lying on its surface with respect to the information layer. But this thick layer acts to introduce optical aberrations that are undesirable in the miniaturization of both the optical disk and the related optical head used to read/write to the optical disk. As such, the present assignee has invented and claimed "first-surface" optical disks that do not include this thick overlaying transparent layer. Instead, dust particles are not defocused but must be dealt with using ECC alone.

Although the present assignee advanced the optical arts through the use of first-surface optical disks, conventional ECC blocks proved to be problematic in these first-surface optical disks. These conventional ECC blocks were optimized for the older, second-surface disks having the conventional CD-ROM /DVD size. When used in miniaturized first-surface optical disks, dust particles could cause multiple burst errors in these conventional ECC blocks as shown in Figure 1. Not only were the chances of burst errors increased, the degree of redundancy to provide the necessary ECC was not enough given that dust particles were no longer defocused. Accordingly, Applicant has invented the embodiment recited in claim 16: namely a first-surface optical disk (defined by the limitations of "an information layer, and a transparent layer overlaying the information layer, wherein the thickness of the transparent layer with respect to the wavelength of the read/write laser beam is such that dust particles on the surface of the transparent layer are not defocused when reading data from the information layer with the laser beam passing through the transparent layer") having its information layer organized into ECC blocks, "each ECC block forming an array of 104 rows and 182 columns of bytes, each row including ten bytes of inner parity and each column including sixteen bytes of outer parity."

LAW OFFICES OF
MACPHERSON KWOK CHEN &
HEID LLP
2402 MICHELSON DRIVE
SUITE 210
IRVINE CA 92612
(949) 752-7040
FAX (949) 752-7049

Applicant respectfully submits that claim 16 is allowable over the Nakatsuji reference (USP 6,332,206). As acknowledged by the Examiner, Nakatsuji "does not explicitly teach the specific use of an ECC block of 104 rows and 182 columns of bytes, each row including ten bytes of inner parity and each column including sixteen bytes of outer parity." But even more importantly, Nakatsuji is entirely silent and makes no suggestion whatsoever regarding the use of first-surface optical disks as invented by the assignee. Because Nakatsuji is entirely silent regarding such a use, Applicant respectfully submits that the assertion by the Examiner that it would be an obvious engineering choice to select the row, column, inner parity, and outer parity values is incorrect. Indeed, the only specific optical disk discussed in the Nakatsuji reference is a DVD-ROM. See, e.g., Col. 23, line 29. The values for the row, column, inner parity, and outer parity for a DVD-ROM are well-known and set by the standard to have 208 rows, 182 columns, 10 bytes of inner parity for each row, and 16 bytes of outer parity for each column.

However, what Applicant is claiming for his first-surface optical disk's information layer is an ECC block having just 104 rows, with the same redundancy (inner parity and outer parity). These is contrary to the conventional wisdom because the payload for each block (the amount of data as compared to the redundancy) is reduced, thereby limiting the overall amount of data that may be carried on the first-surface optical disk. Moreover, Applicant discovered that such a block size provided not only the increased redundancy but resistance to repeated burst errors (such as shown in Figure 1) that would be desirable for a first-surface optical disk. As such, Nakatsuji teaches away from the claimed invention.

The DVD standard cited by the Examiner adds nothing further as it follows the prior art ECC block size just discussed. Accordingly, claim 16 is patentable over the art of record.

Because claims 17 through 20 depend either directly or indirectly upon claim 16, they are patentable for at least the same reasons.

Claim 21 claims another type of first-surface disk also discussed by the Applicant on, e.g., page 6, lines 14 through 30. In this embodiment, no transparent layer covers the information layer (although the transparent layer claimed in claim 16 cannot defocus dust particles, it may help optically couple the laser beam to the information layer). As such claim 21 is patentable over the art of record for the same reasons discussed with respect to claim 16 (the ECC block limitations being the same).

Because claims 22 and 23 depend either directly or indirectly upon claim 21, they are patentable for at least the same reasons.

LAW OFFICES OF
MACPHERSON KWOK CHEN & HEID LLP
2402 MICHELSON DRIVE
SUITE 210
IRVINE CA 92612
(949) 752-7040
FAX (949) 752-7049

CONCLUSION

For the above reasons, pending Claims 16 through 24 are in condition for allowance and allowance of the application is hereby solicited. If the Examiner has any questions or concerns, a telephone call to the undersigned at (949) 752-7040 is welcomed and encouraged.

Certification of Facsimile Transmission

I hereby certify that this paper is being facsimile transmitted to (703) 872-9306 at the U.S. Patent and Trademark Office on the date shown below.

Signature 12/17/03 Date

Respectfully submitted,

Jonathan Hallman
Attorney for Applicant(s)
Reg. No. 42,622

LAW OFFICES OF
MACPHERSON KWOK CHEN &
HEID LLP
2402 MICHELSON DRIVE
SUITE 210
IRVINE CA 92612
(949) 752-7040
FAX (949) 752-7049